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1. (twice amended) A method of forming a dielectric layer comprising:
providing a substrate comprising a silicon-containing surface;
forming a first metal-containing dielectric layer over the surface, the metal of the first dielectric layer consisting of at least one element selected from Group IVB of the periodic table; and
forming a second metal-containing dielectric layer on the first metal-containing dielectric layer, the metal of the second dielectric layer consisting of at least one element selected from Group IIIB of the periodic table.
 2. (amended) The method of Claim 1, wherein the metal of the first metal-containing dielectric layer consists of hafnium.
 3. (twice amended) The method of Claim 1, further comprising:
forming a layer of silicon dioxide overlying at least one portion of the surface; and
wherein forming the first metal-containing dielectric layer comprises:
forming a metal layer over the layer of silicon dioxide; and
combining metal of the metal layer with oxygen of the silicon dioxide layer to form a metal oxide dielectric material.
 4. (twice amended) The method of Claim 3, wherein the metal layer comprises hafnium.

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6. (amended) The method of Claim 1, where the metal of the second metal-containing dielectric layer consists of one element selected from Group IIIB of the periodic table.

7. (amended) The method of Claim 1, where the metal of the second metal-containing dielectric layer consists of lanthanum.

8. (twice amended) The method of Claim 1, where the forming of the first metal-containing dielectric layer and the forming of second metal-containing dielectric layer comprise:

forming a hafnium-containing layer;

forming a lanthanum-containing layer over the hafnium-containing layer; and

exposing the hafnium-containing layer and the lanthanum-containing layer to an oxygen comprising atmosphere and heating the hafnium-containing layer and the lanthanum-containing layer to a temperature effective to form a hafnium-containing dielectric layer and a lanthanum-containing dielectric layer.

10. (twice amended) The method of Claim 8, where the exposing comprises ion bombardment of the first hafnium-containing layer and the lanthanum-containing layer using an ion bombardment energy of about 10 electron volts (eV) or less.

20. (twice amended) A method for forming a MOS transistor, comprising:

- providing a semiconductor substrate having a surface comprising silicon;
- forming a hafnium-containing dielectric layer overlying the surface;
- forming a lanthanum-containing dielectric layer on the hafnium-containing dielectric layer; and
- forming a gate electrode over the hafnium-containing and lanthanum-containing dielectric layers.

21. (twice amended) The method of Claim 20, where:

the forming of the hafnium-containing dielectric layer comprises first forming a hafnium-containing layer;

the forming of the lanthanum-containing dielectric layer comprises second forming a lanthanum-containing layer; and

wherein the first forming and the second forming encompass physical vapor deposition.

22. (twice amended) The method of Claim 21, where physical vapor deposition comprises electron beam evaporation.

52. (amended) A method of forming a dielectric layer comprising:

providing a substrate comprising a silicon-containing surface;

forming a first metal-containing dielectric layer over the surface, the metal of the first layer consisting essentially of hafnium; and

forming a second metal-containing dielectric layer on the first metal-containing dielectric layer, the metal of the second layer consisting essentially of lanthanum.

54. (amended) A method for forming an MOS transistor, comprising:

providing a semiconductor substrate having a surface comprising silicon;

forming a dielectric layer consisting of hafnium oxide overlying the surface;

forming a dielectric layer consisting of lanthanum oxide on the hafnium oxide dielectric layer; and

forming a gate electrode over the hafnium oxide and lanthanum oxide dielectric layers.

55. (amended) A method for forming an MOS transistor, comprising:
providing a semiconductor substrate having a surface comprising silicon;
forming a hafnium-containing layer overlying the surface;
oxidizing the hafnium-containing layer into a hafnium-containing dielectric layer;
forming a lanthanum-containing dielectric layer on the hafnium-containing dielectric layer; and
forming a gate electrode over the hafnium-containing and lanthanum-containing dielectric layers.

56. (new) A method of forming a dielectric layer comprising:
providing a substrate comprising a silicon-containing surface;
forming a layer of silicon dioxide overlying at least one portion of the surface;
forming a hafnium-containing layer over the layer of silicon dioxide;
combining hafnium of the hafnium-containing layer with oxygen of the silicon dioxide layer to form a hafnium oxide over the surface;
forming a lanthanum-containing layer over the hafnium-containing layer; and
exposing the hafnium-containing layer and the lanthanum-containing layer to an oxygen comprising atmosphere by ion bombardment using an energy of about 10 electron volts (eV) or less, and heating the hafnium-containing layer and the lanthanum-containing layer to a temperature effective to form a hafnium-containing dielectric layer and a lanthanum-containing dielectric layer.

57. (new) The method of Claim 56 where the heating comprises heating to a temperature from about 200 C to about 400 C during the ion bombardment.

58. (new) A method of forming a dielectric layer comprising:
- providing a substrate comprising a silicon-containing surface;
 - forming a layer of silicon dioxide overlying at least one portion of the surface;
 - forming a hafnium-containing layer over the layer of silicon dioxide;
 - combining hafnium of the hafnium-containing layer with oxygen of the silicon dioxide layer to form a hafnium oxide over the surface;
 - forming a lanthanum-containing layer over the hafnium-containing layer; and
 - positioning the substrate within a reaction chamber and exposing the hafnium-containing layer and the lanthanum-containing layer to oxygen radicals within the reaction chamber and heating the hafnium-containing layer and the lanthanum-containing layer to a temperature effective to form a hafnium-containing dielectric layer and a lanthanum-containing dielectric layer.

59. (new) A method for forming a MOS transistor, comprising:

providing a semiconductor substrate having a surface comprising silicon;

first forming a hafnium-containing layer and second forming a lanthanum-containing layer over the substrate, the first forming and the second forming encompassing physical vapor deposition;

exposing the hafnium and lanthanum containing layers to an oxygen comprising atmosphere by ion bombardment of the hafnium-containing layer and the lanthanum-containing layer using an energy of about 10 eV or less while heating the hafnium and lanthanum layers to a temperature from about 200 C to about 400 C to form oxides of hafnium and lanthanum as a hafnium-containing dielectric layer and a lanthanum-containing dielectric layer, respectively; and

forming a gate electrode over the hafnium-containing and lanthanum-containing dielectric layers.